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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,518	10/16/2003	Toshio Nomaguchi	033035M134	4906
441	7590	10/24/2005	EXAMINER	
SMITH, GAMBRELL & RUSSELL, LLP 1850 M STREET, N.W., SUITE 800 WASHINGTON, DC 20036			UNELUS, ERNEST	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 10/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/686,518	<b>Applicant(s)</b> NOMAGUCHI, TOSHIO	
	<b>Examiner</b> Ernest Unelus	<b>Art Unit</b> 2828	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 18 October 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,9,11 and 12 is/are rejected.
- 7) ☒ Claim(s) 6,7 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/16/03, 10/08/04</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Regarding claims 1 and 9, the addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite. See MPEP § 2173.05(e).

### ***Claim Rejections - 35 USC § 102***

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 8, and 9 are rejected under 35 U.S.C 102(e) as being anticipated by Kise et al. (US 2004/0013144).

With respect to claims 1 and 9, Kise discloses a semiconductor laser of a distributed feedback (10) for emitting light with plural Fabry-perot modes and a Bragg grating mode, the laser comprising active layer (16) made of a semiconductor material; a Bragg grating for defining the Bragg grating mode; a light-reflecting surface for reflecting light generated in the active region; and a light-emitting surface providing with an anti reflective coating thereon, the light emitting surface with the anti-reflective coating having a reflectivity, the light-emitting surface and the light-reflecting surface

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forms a Fabry perot resonator combined with the active region there between for defining the Fabry-perot modes (see paragraphs 0039-0054). In regards to the reflectivity of the light-emitting surface has a minimum at a wavelength where an gain spectrum attributed to the Fabry-perot modes is maximum at a predetermined temperature, the reflectivity of the light emitting facet is less than one percent and therefore is a minimum at a wavelength to suppress Fabry Perot modes (see par. 0054). Since Fabry Perot modes are suppressed, it is inherent that the gain spectrum of the modes is maximum at this wavelength. This occurs at the temperature at operation of the laser, which can be interpreted as a "predetermined temperature". In regards to the reflectivity of the light emitting surface having a minimum at a predetermined wavelength smaller than a specific wavelength at which a magnitude of the luminescence from the active region is maximum at a room temperature, since with the room temperature the luminescence from the active region is maximum, therefore, the other different temperatures would allow the laser to produce a luminescence, which is less than the maximum. Therefore, the reflectivity of the light-emitting surface is minimum. Predetermined wavelength is any wavelength that is less than the specific wavelength.

With respect to claims 2-3, and 11-12, Kise discloses a minimum reflectivity of the light-emitting surface with the anti-reflective coating being smaller than 1.0% (see par. 0054).

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With respect to claim 4, It's inherent that a gain attributed to the Bragg grating mode is greater than the gain attributed to the Fabry Perot modes at the Predetermined temperature because the FP mode is suppressed at the predetermined temperature.

With respect to claim 5, Kise discloses the laser further includes a first wavelength (emission) of the Bragg grating mode, and a second wavelength (bandgap) at which the gain attributed to the Fabry Perot modes is the maximum, the first wavelength being greater than the second wavelength at the "predetermined temperature", which can be any temperature (see par. 0060).

With respect to claim 8, Kise discloses an active layer is made of InGaAsP with a band gap energy corresponding to 1.55 micrometers wavelength band (see paragraph 0060).

#### ***Allowable Subject Matter***

Claims 6, 7, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious, the laser further includes a first wavelength of the Bragg grating mode is the maximum,

and a second wavelength at which the gain attributed to the Fabry Perot mode is the maximum, a difference between the first wavelength and the second wavelength being from -7 to +8nm at a room temperature, the predetermined temperature is -40C, and the predetermined wavelength being 45nm smaller than the specific wavelength.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lam et al. (US Pat. 6,807,215) discloses a laser comprising a Bragg grating mode, Fabry Perot, an anti reflective, and a reflective side. Lam fails to specifically disclose that the laser is a distributed feedback laser.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-0218. The examiner can normally be reached on 9:00am to 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*E.U*

  
**ZANDRA V. SMITH**  
**PRIMARY EXAMINER**